



Annual Audit Compliance Report Form

Environmental Protection Act 1986, Part V

Once completed, please submit this form either via email to info-der@dwer.wa.gov.au, or to the below postal address:

Department of Water and Environmental Regulation
Locked Bag 33 Cloisters Square
PERTH WA 6850

Section A – Licence Details			
Licence number:	L8675/2012/1	Licence file number:	2012/005167
Licence holder:	Millennium Minerals Limited		
Trading as:	Millennium Minerals Limited (MML)		
ABN:	85 003 257 556		
Registered address:	Unit 7, 140 Abernathy Road, Belmont WA 6984		
Reporting period:	01/10/2017 to 30/09/2018		

Section B – Statement of Compliance with Licence Conditions
Did you comply with all of your licence conditions during the reporting period? (please tick the appropriate box)
<input type="checkbox"/> Yes – please complete: <ul style="list-style-type: none">• section C;• section D if required; and• sign the declaration in Section F.
<input checked="" type="checkbox"/> No – please complete: <ul style="list-style-type: none">• section C;• section D if required;• section E; and• sign the declaration at Section F.

Section C – Statement of Actual Production	
Provide the actual production quantity for this reporting period. Supporting documentation is to be attached.	
Prescribed Premises Category	Actual Production Quantity
Categories 5 and 7	1,891,092 tonnes

Section D – Statement of Actual Part 2 Waste Discharge Quantity	
Provide the actual Part 2 waste discharge quantity for this reporting period. Supporting documentation is to be attached.	
Prescribed Premises Category	Actual Part 2 Waste Discharge Quantity
Category 85	46.3 m ³ /day average or 16,195 m ³ /year

Section E – Details of Non-Compliance with Licence Condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Condition 1.3.3	Date(s) of non-compliance:	12 April 2018
Details of non-compliance:			
<p>Treated wastewater was being discharged from the Sewage Treatment Plant (STP) to a location other than in accordance with the licence. Overflow from the treated transfer tank was occurring and running down slope for approximately 20 metres. Treated wastewater from the Biomax system was transferred to this sump prior to being pumped to the final outfall location.</p>			
<p>What was the actual (or suspected) environmental impact of the non-compliance?</p> <p>NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.</p>			
<p>Treated wastewater was being discharged from the STP to the sump which was observed to be overflowing to the surrounding environment. There were no noticeable environmental impacts from this outfall other than the promotion of weed growth in the general proximity of the overflow. This effluent would be safe to dispose through a system of sprinklers or drippers which is common across remote sites such as the Nullagine Gold Operation and is accepted as standard practice and guidance by the Water Corporation and the Department of Health.</p>			
Cause (or suspected cause) of non-compliance:			
<p>The transfer pump located at the accommodation village was not upgraded when the Bio-max unit was installed and thus did not have the capacity to keep up with the outflow from the final storage tank where final treatment of the effluent occurs. This resulted in a slight overflow during peak periods in the morning and evening when residents were in the camp and thus a discharge to a localized area.</p>			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
<p>The existing pump was replaced with a larger capacity pump. The pump area was also made more accessible for regular inspections to occur. Evidence was provided to DWER and the incident was closed out. An extension to a carpark has been constructed at this location and there has been no further outfall to the surrounding environment.</p>			
Was this non-compliance previously reported to DWER?			
<input checked="" type="checkbox"/> Yes, and <input type="checkbox"/> No ERF 3283 issued			
<input type="checkbox"/> Reported to DWER verbally		Date: / /	
<input checked="" type="checkbox"/> Reported to DWER in writing		Date: 12/04/2018	

Section E – Details of Non-Compliance with Licence Condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Condition 1.3.5 a and b	Date(s) of non-compliance:	12 April 2018
Details of non-compliance:			
<p>TSF2 toe drains were observed to have an open-ended design allowing surface water and potential contamination and discharge of material to the environment. These drains were also full of transported topsoil material, reducing capacity and effectiveness of toe drains.</p>			
<p>What was the actual (or suspected) environmental impact of the non-compliance?</p> <p>NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.</p>			
<p>Both toe drains at the TSF2 facility were full of sediment that had run off surrounding topsoil storage areas (fine topsoil material) into the drains eliminating capacity for surface water capture and thus provided avenue for potential contaminants to enter the environment. Potential for cyanide contaminants (if the facility was seeping into the toe drain) to be flushed out of the drain and into the receiving environment during rainfall events. The toe drains had not illustrated any previous evidence of seepage, though this was also difficult to ascertain due to them being full of topsoil material from nearby stockpiles. There were noted visual impacts to the environment.</p>			
Cause (or suspected cause) of non-compliance:			
<p>The proximity (4-5m) of the stored topsoil to the toe drains provided a nearby pathway for topsoil transportation into the drains. The wet season following the initial deposition of the topsoil material (no plant growth to stabilize material) amounted to 650 mm of rain (twice the annual average) which also contributed to the movement of material into the drain. The topsoil recovered from the TSF construction footprint was stored near the TSF due to limited availability of approved clearing areas from DMIRS. Heavy rains and erosion further exacerbated sediment transportation into the toe drain trenches.</p>			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
<p>The topsoil sediment in the toe drains was removed and capacity reinstated. All material from the toe drains were deposited back into TSF2 under direction from DWER’s inspecting officers. These works were completed and checked by DWER officers on their second visit to site in May 2018, please see photos below.</p> <p>A location surface water management plan for the site has since been prepared for the facility with recommendations guiding management works. This guidance has enabled further works on constructed bunding with competent rock material adjacent to both the topsoil side and toe drain edge (see photos below) along the eastern boundary of the facility, with similar works proposed on the western boundary during the next construction lift (western end less topsoil ingress and road has been sheeted to provide more effective drainage away from this drain). All four ends of the toe drains have had bunds fully reinstated, with implementation of various sediment basins constructed around the facility to prevent further water flow into toe drains. Surface water management works will continue to be completed during facility construction.</p>			

Section E – Details of Non-Compliance with Licence Condition



Plate 1 – Removal of Sediment from Toe Drains



Plate 2 – Deposited material from toe drain in TSF Cell



Plate 3 – Bund construction along and at end of toe drains – Eastern Wall



Plate 4 – Constructed bund and drain. Barrier to exclude further topsoil entering toe drain.

Was this non-compliance previously reported to DWER?

Yes, and No EFR 3278 issued

Reported to DWER verbally

Date: / /

Reported to DWER in writing

Date: 12/04/2018

Section E – Details of Non-Compliance with Licence Condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Condition 1.3.5 a and b	Date(s) of non-compliance:	12 April 2018
Details of non-compliance:			
<p>Schedule 1 – materials that must not be discharged into the environment. TSF1 toe drains found to have reduced capacity and functionality due to long term sediment build up. This has resulted in water overtopping the drain facility and causing erosion providing avenue for a drain breached, with sediment from the drain then available to enter the natural environment.</p>			
<p>What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.</p>			
<p>Soil samples were taken by inspecting officers and MML environmental staff from the surrounding receiving environment, with returned results not providing any evidence of any elevated contaminants. Background samples were also taken from the surrounding environment (outside the influence of the sediment discharge in the surface water system) providing comparative assessment and further evidence to that contaminants were not present in the environment at this time. There was no visual impact to the receiving environment.</p> <p>Suspended solids from the drain were released to the surrounding environment, with silt and clay materials creating staining and fines to enter the environment. Due to the function of the toe drains and the movement of water from these drains, it could be expected that this has caused environmental impact from these above pollutants entering the natural environment.</p>			
Cause (or suspected cause) of non-compliance:			
<p>Due to the lack of regular visual inspections of the toe drains and the overall facility, it was not highlighted the toe drain had filled with sediment and water movement had caused erosion across a low point section of the drain infrastructure. Previous years rainfall was twice the annual average, with several significant events recorded. This combined with a lack inspections and ongoing maintenance contributed to the breach of the drain and the ultimate release of potential contaminants to the receiving environment.</p>			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
<p>The entire length of the toe drain infrastructure was cleaned out and any breaches to the drain were reinstated with competent rock material. Surface water management was reviewed, and a number of works were completed to divert water away from the facility including the installation of sediment traps and construction of bund formations to reduce water ingress into the drains. Photos of these works have been provided to the department to provide closeout of the non-compliance (11/09/2018 – Jaala Baldock), further photos of works are also provided below.</p>			

Section E – Details of Non-Compliance with Licence Condition



Plate 1 – Sediment basin constructed in front of toe drain (location of erosion breach).



Plate 2 – Built up drain infrastructure (location of breach) front view of Plate 5 below.



Plate 3 – Bund construction along and at end of toe drains – Eastern Wall



Plate 4 – Constructed bund and drain. Barrier to exclude further topsoil entering toe drain.

Section E – Details of Non-Compliance with Licence Condition



Plate 5 – Depth of construction of toe drain wall at location of erosion breach (sediment basin directly in front to provide water flow from surrounding environment).

Plate 6 – Sediment basin constructed in front of toe drain (location of erosion breach) to remove excessive water flow away from toe drain infrastructure.

Was this non-compliance previously reported to DWER?

Yes, and No Identified on in inspection undertaken by DWER on 12 April 2018.

Reported to DWER verbally

Date:

Reported to DWER in writing

Date: 12/04/2018

Section E – Details of Non-Compliance with Licence Condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Environmental Protection Act 1986 Section 53	Date(s) of non-compliance:	19 April 2018
Details of non-compliance:			
Category 73 – Bulk Storage of Chemicals, threshold exceedance. EFR 3278 issued 19 th of April 2018 Licence not reflect actual capacity contained at operations.			
What was the actual (or suspected) environmental impact of the non-compliance?			
NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
No impact to the environment, (administration requirement) licence amendment provided to the department and threshold was increased to reflect actual storage.			
Cause (or suspected cause) of non-compliance:			
Poor assessment provision when licence was initially applied for.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
No adverse effects, licence represents actual storage represented across operation.			
Was this non-compliance previously reported to DWER?			
<input checked="" type="checkbox"/> Yes, and <input type="checkbox"/> No ERF 3278 Issued			
<input type="checkbox"/> Reported to DWER verbally		Date:	
<input checked="" type="checkbox"/> Reported to DWER in writing		Date: 19/04/2019	

Section E – Details of Non-Compliance with Licence Condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	1.3.7	Date(s) of non-compliance:	12 April 2018
Details of non-compliance:			
Water balance calculation incorrect for the TSF2 facility.			
What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
If accurate water balance is not maintained there may be unaccounted loss or seepage of water into the groundwater. The desired water balance can be maintained through accurate water balance calculation.			
Cause (or suspected cause) of non-compliance:			
Water balance accounting was occurring, however the accuracy and record keeping of the water balance required improvement.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
<p>An updated and calculated accurate water balance was provided to DWER on 9 September 2018. Following the departments concerns over potential seepage, MML engaged a Geotechnical Consultant to assess potential seepage risks and provided a report and a technical memorandum to further reinforce the data being collected at the facility (Groundwater Risk Assessment TSF2 – June 2018 and Golden Eagle TSF2 Seepage Recovery Assessment October 2018 – Added to the AER Report)</p> <p>As part of the recommendations set out in these documents, four recovery/monitoring bores were installed downstream across hydrology contours to further monitor the facility to provide further risk mitigation and reinforce assumptions made in these assessments. MML continues to improve their overall water balance accuracy with the implementation of full telemetry to be completed across the facility by the end of April 2019. This includes live access to all water meters and VWP piezo's across the facility. A further 8 piezo's are to be installed during the 2019 reporting period. MML has also dramatically reduced the supernatant pond across the facility to a level where recovery of water has been difficult due to the low levels available, this has further reduced the risk of seepage and offered greater consolidation of tails and reduced lock-up of water resources.</p>			
Was this non-compliance previously reported to DWER?			
<input checked="" type="checkbox"/> Yes, and <input type="checkbox"/> No Identified on an inspection undertaken by DWER on 12 April 2018.			
<input type="checkbox"/> Reported to DWER verbally		Date:	
<input checked="" type="checkbox"/> Reported to DWER in writing		Date: 12/04/2018	

Section E – Details of Non-Compliance with Licence Condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Environmental Protection (Unauthorized Discharges) Regulations 2004	Date(s) of non-compliance:	19 April 2018
Details of non-compliance:			
Hydrocarbons from the bulk refueling facility discharged into the environment.			
What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
Hydrocarbon discoloration was observed on the soil around the vicinity of the mesh bund, with inadequate protection from further contamination (Main Fuel Farm near the power generation plant).			
Cause (or suspected cause) of non-compliance:			
Hydrocarbons have spilled into the surrounding environment, contaminating soil material.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
All sumps were cleaned out of soil and liquid, with capacity returned. Regular inspections and maintenance of the facility was enacted. Spill kits were refilled with absorbents (see photos below), with site notices provided to staff on the importance of maintaining a clean and contamination free fuel refilling environment. A concrete impermeable pad was constructed at all three fill points across the fuel farm in February/March (see photos below)			

Section E – Details of Non-Compliance with Licence Condition

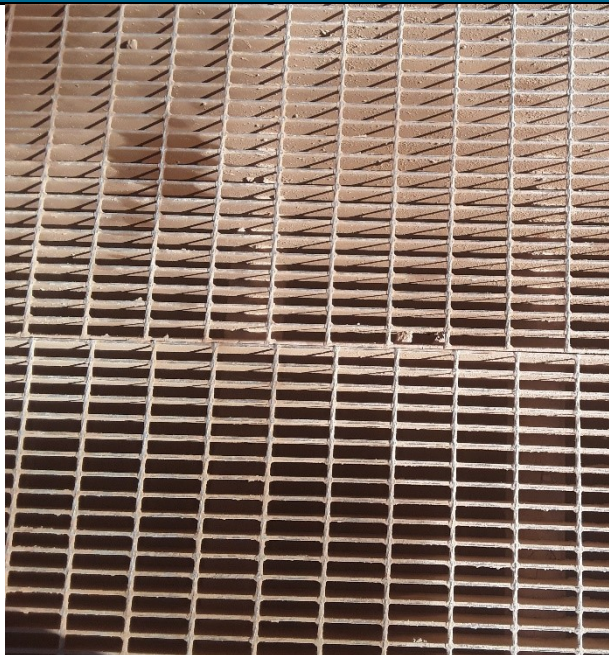


Plate 1 – Cleaned out grate under fuel supply hose.



Plate 2 – Fuel farm after contaminated soil removed, signs of staining and potential contamination remain.



Plate 3 – Spill kits refilled and replaced.

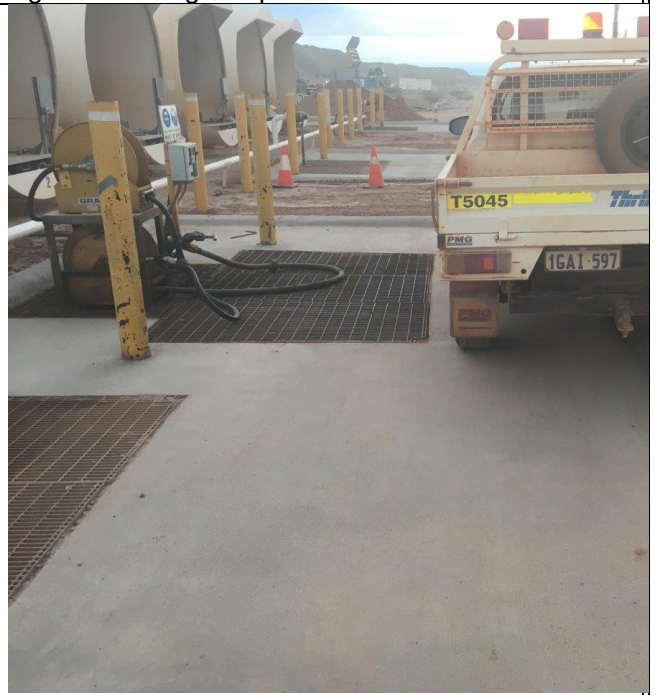


Plate 4 – Impermeable concrete bunding installed at all three fill-up points at fuel farm.

Was this non-compliance previously reported to DWER?

Yes, and No EFR 3286 issued

Reported to DWER verbally

Date: / /

Reported to DWER in writing

Date: 19/04/2018

Section E – Details of Non-Compliance with Licence Condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Environmental Protection Act 1986 Section 53	Date(s) of non-compliance:	19 April 2018
Details of non-compliance:			
Category 54 – Sewage facility – licence capacity/ throughput exceedance Licence did not reflect actual outfall capacity of new WWTP facility.			
What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
No impact to the environment, (administration requirement). New WWTP was installed at the village accommodation requiring a licence amendment to the department due to increase in treated effluent outfall.			
Cause (or suspected cause) of non-compliance:			
Oversight when facility was replaced upon the upgrade of the camp facilities. Main focus for the replacement of the previous system was non-compliant effluent outfall which has now been mitigated with installation of new unit.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
No adverse effects, licence represents actual effluent outfall quantity from the facility.			
Was this non-compliance previously reported to DWER?			
<input checked="" type="checkbox"/> Yes, and <input type="checkbox"/> No			
<input type="checkbox"/> Reported to DWER verbally		Date:	
<input checked="" type="checkbox"/> Reported to DWER in writing		Date: 19/04/2019	

Section E – Details of Non-Compliance with Licence Condition

Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.

Condition no:	Chloride Table 3.4.1 – Quarterly, Six monthly, and Annual Water Quality Monitoring	Date(s) of non-compliance:	Number of occurrences over 2017 to 2018 reporting period.
Details of non-compliance:			

Bore KCB07F sampled on 3 March 2018 recorded 5,760mg/L and bore M17 sampled on 19 June 2018 recorded 4,480mg/L for chloride for the annual sampling events. The DWER guideline limit for Chloride is 1500mg/L. All other bores were compliant for the annual sampling events.

Bore KCB53 sampled on 29 November 2018 recorded 3,430mg/L and sampled on 6 June 2018 recorded 3,00mg/L for the six-monthly sampling events. All other bores were compliant for the six-monthly sampling events.

Bores TSF2MB3S, TSF2MB4S, and KCB07F reported above the DWER guideline for the quarterly sampling events (**Table 1**). Bores KCB12 and KCB41 were compliant (**Table 1**).

Table 1 Chloride Quarterly Sampling 1

TSF2MB3S					TSF2MB4S					KCB07F			KCB12			KCB41		
20/08/17	25/10/17	28/11/17	28/03/18	17/06/18	20/08/17	25/10/17	28/11/17	29/03/18	17/06/18	20/08/17	30/11/17	30/03/18	20/08/17	12/11/17	28/03/18	13/06/18	20/08/17	30/11/17
7,310	7,660	7,300	7,760	8,220	5,300	8,740	8,970	10,500	11,200	5,360	5,260	5,760	697	743	647	699	131	125

Bores TSF2MB1D, TSF2MB2D, TSF2MB3D, TSF2MB4D, and TSF2MB5 reported results over the DWER guideline limit on quarterly sampling events (**Table 2**).

Table 2 Chloride Quarterly Sampling 2

TSF2MB1D				TSF2MB2D				TSF2MB3D				TSF2MB4D				TTSF2MB5			
19/08/17	25/11/17	31/03/18	16/06/18	19/08/17	10/11/17	2/03/18	16/06/18	19/08/17	25/11/17	31/03/18	16/06/18	19/08/17	26/11/17	31/03/18	16/06/18	19/08/17	26/11/17	30/03/18	16/06/18
9570	9420	9500	10,200	5650	5450	5500	5620	6500	6230	6290	6530	8000	7700	7860	8210	6070	5910	7300	8040

Bores TSF2MB1S and TSF2MB2S reported above the DWER guideline for the quarterly sampling events (**Table 3**). Bores TDMB6S, TDMB6D, TDMB1A, TDMB2A were compliant during the quarterly sampling events (**Table 3**).

Table 3 Chloride Quarterly Sampling 3

TSF2MB1S		TSF2MB2S
28/03/18	17/06/18	29/08/2018
9,430	9,900	7,590

Bores TSF2MB1D, TSF2MB2D, TSF2MB3D, TSF2MB4D, and TSF2MB reported compliance on the quarterly sampling events (**Table 4**).

Table 4 Chloride Quarterly Sampling 4

Bores TSF2MB1D				TSF2MB2D				TSF2MB3D				TSF2MB4D				TSF2MB			
27/08/17	27/11/17	28/03/18	17/06/18	27/08/17	27/11/17	28/03/18	17/06/18	27/08/17	28/11/217	28/03/18	17/06/18	27/08/17	28/11/17	29/03/18	17/06/18	19/08/17	26/11/17	29/03/18	17/06/18
9570	9420	9500	10,200	5650	5450	5500	5620	6500	6230	6290	6530	8000	7700	7860	8210	6070	5910	7300	8040

<p>What was the actual (or suspected) environmental impact of the non-compliance? NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.</p>	
<p>There are no noted or visual effects on the surrounding environment from these elevated exceedances, further investigation will be made into determining if these are indeed elevated background results from the surrounding minerology as currently understood.</p>	
<p>Cause (or suspected cause) of non-compliance:</p>	
<p>Bore KCB07F has historically had elevated concentrations. KCB07F is upgradient of the tailing facilities and these results are thought to be indicative of background concentrations in this location.</p> <p>The higher chloride levels akin to ‘marginal’ water quality were measured in samples from KCB53 in relating to waste rock dumping.</p> <p>The higher chloride akin to ‘marginal’ water quality were measured for the TSFMB monitoring bore series. Strontium levels were also elevated. Evaporative concentration related to mineral processing and tailings deposition may be a signature of these measurements and relate to the interaction of the TSF with the nearby groundwater. It is notable that no CN species were measured at elevated levels.</p>	
<p>Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:</p>	
<p>Ongoing monitoring to determine if concentrations are increasing, stabilizing or decreasing over time and if concentrations are influenced by rainfall events at these locations.</p> <p>The installation of further monitoring and production (pump back ability) will provide further monitoring opportunity to further investigate these elevated levels.</p>	
<p>Was this non-compliance previously reported to DWER?</p>	
<p><input type="checkbox"/> Yes, and <input checked="" type="checkbox"/> No</p>	
<p><input type="checkbox"/> Reported to DWER verbally</p>	<p>Date:</p>
<p><input type="checkbox"/> Reported to DWER in writing</p>	<p>Date:</p>

Section E – Details of Non-Compliance with Licence Condition

Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.

Condition no:	Sulphate Table 3.4.1 – Quarterly, Six monthly, and Annual Water Quality Monitoring	Date(s) of non-compliance:	Multiple occurrences over 2017 to 2018 reporting period.
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Details of non-compliance:

Table 5 Sulphate Quarterly Sampling 1

TSF2MB3S					TSF2MB4S					KCB07F			KCB12				KCB41	
20/08/17	25/10/17	28/11/17	28/03/18	17/06/18	20/08/17	25/10/17	28/11/17	29/03/18	17/06/18	20/08/17	30/11/17	30/03/18	20/08/17	12/11/17	28/03/18	13/06/18	20/08/17	30/11/17
9,910	10,400	10,200	9,150	9,820	5,680	10,500	11,400	8,100	12,000	8,280	9,270	8,170	1,040	1,150	929	1,090	467	444

Bores TSF2MB1D, TSF2MB2D, TSF2MB3D, TSF2MB4D, and TDMB5 reported results over the DWER guideline limit on quarterly sampling events (**Table 6**).

Table 6 Sulphate Quarterly Sampling 2

TSF2MB1D				TSF2MB2D				TSF2MB3D				TSF2MB4D				TSF2MB5			
19/08/17	25/11/17	31/03/18	16/06/18	19/08/17	10/11/17	2/03/18	16/06/18	19/08/17	25/11/17	31/03/18	16/06/18	19/08/17	26/11/17	31/03/18	16/06/18	19/08/17	26/11/17	30/03/18	16/06/18
13,300	14,500	11,900	14,100	7400	7830	6790	7240	9350	9170	7960	8520	10,500	10,300	8940	10,000	4140	3950	4610	4770

Bores TSF2MB1S and TSF2MB2S reported above the DWER guideline for the quarterly sampling events (**Table 7**). Bores TDMB6S, TDMB6D, TDMB1A, TDMB2A were compliant during the quarterly sampling events (**Table 7**).

Section E – Details of Non-Compliance with Licence Condition

Table 7 Sulphate Quarterly Sampling 3

TSF2MB1S		TSF2MB2S
28/03/18	17/06/18	29/08/2018
12,000	14,000	9090

Bores TSF2MB1D, TSF2MB2D, TSF2MB3D, TSF2MB4D, and TDMB reported compliance on the quarterly sampling events (**Table 8**).

Table 8 Sulphate Quarterly Sampling 4

TSF2MB1D				TSF2MB2D				TSF2MB3D				TSF2MB4D				TD2MB5			
27/08/17	27/11/17	28/03/18	17/06/18	27/08/17	27/11/17	28/03/18	17/06/18	27/08/17	28/11/217	28/03/18	17/06/18	27/08/17	28/11/17	29/03/18	17/06/18	19/08/17	26/11/17	29/03/18	17/06/18
13,300	14,500	11,900	14,100	7400	7830	6790	7240	9350	9170	7960	8520	10,500	10,300	8940	10,000	4140	3950	4610	4770

What was the actual (or suspected) environmental impact of the non-compliance?

NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.

There are no noted or visual effects on the surrounding environment from these elevated exceedances, further investigation will be made into determining if these are indeed elevated background results from the surrounding minerology as currently understood.

Cause (or suspected cause) of non-compliance:

Bore KCB07F has historically had elevated concentrations. KCB07F is upgradient of the tailing facilities and these results are thought to be indicative of background concentrations in this location.

The higher sulphate levels akin to ‘marginal’ water quality were measured in samples from KCB53 in relating to waste rock dumping. Again, evaporative concentration near mining operations may be inferred here. The higher sulphate akin to ‘marginal’ water quality were measured for the TSFMB monitoring bore series. Strontium levels were also elevated. Evaporative concentration related to mineral processing and tailings deposition may be a signature of these measurements and relate to the interaction of the TSF with the nearby groundwater. It is notable that no CN species were measured at elevated levels.

Section E – Details of Non-Compliance with Licence Condition	
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:	
<p>Ongoing monitoring to determine if concentrations are increasing, stabilizing or decreasing over time and if concentrations are influenced by rainfall events at these locations. Further investigation will be undertaken with statistical assessment of the monitoring database and further in situ field assessment to be provided to the department by the middle of 2019.</p>	
Was this non-compliance previously reported to DWER?	
<input type="checkbox"/> Yes, and <input checked="" type="checkbox"/> No	
<input type="checkbox"/> Reported to DWER verbally	Date:
<input type="checkbox"/> Reported to DWER in writing	Date:

Section E – Details of Non-Compliance with Licence Condition

Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.

Condition no:	Strontium Table 3.4.1 – Quarterly, Six-monthly, and Annual Water Quality Monitoring	Date(s) of non-compliance:	Multiple occurrences over 2017 to 2018 reporting period.
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Details of non-compliance:

Bore KCB07 reported a reading of 7.24mg/L on the 30 March 2018 annual sampling events. The DWER guideline limit for strontium is 4mg/L. All other bores were compliant during the annual sampling events.

Bore KCB53 reported a reading of 5.1mg/L (29 November 2017) 5.16mg/L (6 June 2018) on the six monthly sampling events. All other bores were compliant during the six-monthly sampling events.

Bore TSF2MB1S reported a reading of 6.93mg/L (28 March 2018) and 6.58mg/L (17 June 2018) on the quarterly sampling events. Bore TSF2MB2S reported a reading of 8.73mg/L on the 29 August 2018 quarterly sampling events. Bores TDMB6S, TDMB6D TDMB1A TDMB2A were compliant on the quarterly sampling events (**Table 9**)

Table 9 Strontium Quarterly Sampling 1

TSF2MB1S		TSF2MB2S
28/03/18	17/06/18	29/08/2018
6.93	6.58	8.73

Bores TSF2MB1D, TSF2MB2D, TSF2MB3D, and TSF2MB4D reported above the DWER guidelines on the quarterly sampling event (**Table 10**). Bore TSF2MB5 reported compliance on the quarterly sampling event (**Table 10**).

Table 10 Strontium Quarterly Sampling 2

TSF2MB1D				TSF2MB2D				TSF2MB3D				TSF2MB4D				TSF2MB5			
27/08/17	27/11/17	28/03/18	17/06/18	27/08/17	27/11/17	28/03/18	17/06/18	27/08/17	28/11/217	28/03/18	17/06/18	27/08/17	28/11/17	29/03/18	17/06/18	19/08/17	26/11/17	29/03/18	17/06/18
7.38	6.64	6.29	6.38	6.66	5.64	5.62	6.35	9.09	7.8	6.98	7.97	8.17	7.14	6.8	7.31	2.4	2.42	3.02	2.96

Section E – Details of Non-Compliance with Licence Condition

Bores TSFMB3S, TSFMB4S, and KCB07F reported above the DWER guidelines on the quarterly sampling events (**Table 11**). Bores KCB12 and KCB41 reported compliance on the quarterly sampling events (**Table 11**).

Table 11 Strontium Quarterly Sampling 3

TSF2MB3S					TSF2MB4S					KCB07F			KCB12				KCB41	
20/08/17	25/10/17	28/11/17	28/03/18	17/06/18	20/08/17	25/10/17	28/11/17	29/03/18	17/06/18	20/08/17	30/11/17	30/03/18	20/08/17	12/11/17	28/03/18	13/06/18	20/08/17	30/11/17
8.80	9.13	8.19	7.89	8.32	5.10	6.97	7.44	7.08	8.17	4.38	6.03	7.24	1.02	1.18	1.25	0.806	0.502	0.456

Bores TDMB1D, TDMB2D, TDMB3D, TDMB4D, and TDMB5D reported compliance on the quarterly sampling event (**Table 12**).

Table 12 Strontium Quarterly Sampling 4

Bores TDMB1D				TDMB2D			TDMB3D			TDMB4D				TDMB5D					
19/08/17	25/11/17	31/03/18	16/06/18	19/08/17	10/11/17	2/03/18	16/06/18	19/08/17	25/11/17	31/03/18	16/06/18	19/08/17	26/11/17	31/03/18	16/06/18	19/08/17	26/11/17	30/03/18	16/06/18
0.525	0.458	0.479	0.556	0.349	0.395	0.563	0.583	0.148	0.162	0.16	0.19	0.256	0.22	0.248	0.245	0.086	0.069	0.087	0.093

The trend shows that TSF 2 bores have readings above the DWER guidelines. The baseline monitoring of the bores outlines the lack of recharge into the TSF2 area as there are higher concentrations of the parameters sampled relative to other monitoring bores in alluvial areas.

What was the actual (or suspected) environmental impact of the non-compliance?

NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.

There is no visual or noted environmental impact from these elevated readings.

Cause (or suspected cause) of non-compliance:

At KBC7F relatively high levels of sulphate, chloride and strontium were measured in the March 2018 groundwater sample. This bore has historically had elevated concentrations and it is understood to relate to seasonal fluctuations and background readings being elevated at certain times of the year. KCB07F is upgradient in regards to hydrology of the tailing facilities and these results are thought to be indicative of background concentrations in this location.

Section E – Details of Non-Compliance with Licence Condition	
<p>At KCB53 trace levels of strontium in this setting were measured and are not unexpected.</p> <p>During quarterly sampling strontium levels were also elevated. Evaporative concentration related to mineral processing and tailings deposition may be a signature of these measurements and relate to the interaction of the TSF with the nearby groundwater, though if this was the case there would be a strong correlation to the recording of CN species and these were not measured at elevated levels.</p>	
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:	
<p>Ongoing monitoring to determine if concentrations are increasing, stabilizing or decreasing over time and if concentrations are influenced by rainfall events at these locations. More accurate sampling regimes and thorough analysis assessment in the previous 2 sampling years may have also led to the notification of these readings so further attention will be directed to these</p>	
Was this non-compliance previously reported to DWER?	
<input type="checkbox"/> Yes, and <input checked="" type="checkbox"/> No	
<input type="checkbox"/> Reported to DWER verbally	Date:
<input type="checkbox"/> Reported to DWER in writing	Date:

Section E – Details of Non-Compliance with Licence Condition

Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.

Condition no:	Selenium Table 3.4.1 – Quarterly Water Quality Monitoring	Date(s) of non-compliance:	20 August 2017
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Details of non-compliance:

Bore KCB41 on 20 August 2017 during a quarterly sampling event reported 0.12mg/L which is slightly over the DWER guideline limit of 0.1mg/L.

Analyte	TSF2MB3S	
	20-08-17	25-10-17
Total Selenium	<0.01	<0.05
	TSF2MB4S	
	20-08-17	25-10-17
	<0.01	<0.05
	KCB07F	
	20-08-17	30-11-17
	<0.01	<0.01
	KCB12	
	20-08-17	12-11-17
	0.01	<0.01
	KCB41	
	20/08/17	30-11-17
	0.12	0.05

What was the actual (or suspected) environmental impact of the non-compliance?

NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.

There are no noted or visual effects on the surrounding environment from these elevated exceedances, further investigation will be made into determining if these are indeed elevated background results from the surrounding minerology as currently understood.

Section E – Details of Non-Compliance with Licence Condition			
Cause (or suspected cause) of non-compliance:			
KCB41 has had strontium detected on other occasions. This result may be indicative of background concentrations with differing historical results attributable to rainfall events mobilizing strontium in groundwater.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Bore KCB41 has provided compliant readings on all other sampling events including follow up quarterly monitoring on Bore KCB41 on the 30 November 2017 where it reported 0.05mg/L.			
Was this non-compliance previously reported to DWER?			
<input type="checkbox"/> Yes, and <input checked="" type="checkbox"/> No			
<input type="checkbox"/> Reported to DWER verbally		Date:	
<input type="checkbox"/> Reported to DWER in writing		Date:	
Section E – Details of Non-Compliance with Licence Condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	Mercury Table 3.4.1 – Six Monthly Water Quality Monitoring	Date(s) of non-compliance:	28 November 2017
Details of non-compliance:			
Bore KCB53 reported a reading of 0.01062mg/L on 28 November 2017 six monthly sampling events which is slightly over the DWER guideline limit of 0.01mg/L. All other sampling events and bores for Mercury reported compliance.			

What was the actual (or suspected) environmental impact of the non-compliance?

NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.

11SDMW08		GEWB0002		mg/L
29-11-17	05-06-18	28-11-17	05-06-18	
<0.0001	<0.0001	<0.0001	<0.0001	
GEWB0004		GEWB0005		
28-11-17	06-06-18	28-11-17	-	
<0.0001	<0.0001	<0.0001		
GEWB0016		KCB53		
28-11-17	-	29-11-17	06-06-18	
<0.0001		0.0162	0.003	
M06		M07		
28-11-17	05-06-18	28-11-17	06-06-18	
<0.0001	<0.0001	<0.0001	<0.0001	

Cause (or suspected cause) of non-compliance:

Bore KCB53 has provided compliant readings on all other sampling events including follow up six monthly sampling on 6 June 2018 of 0.008mg/L. Trace levels of mercury in this location are not unexpected.

Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:

Ongoing monitoring to determine if concentrations are increasing, stabilizing or decreasing over time and if concentrations are influenced by rainfall events at these locations. If these results are reflected in certain topography, low points in catchments with surrounding minerology will also be investigated in the over the coming year and reported back to the department.

Was this non-compliance previously reported to DWER?

Yes, and No

Reported to DWER verbally

Date:

Reported to DWER in writing

Date:

Section E – Details of Non-Compliance with Licence Condition

Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.

Condition no:	Nitrate Table 3.4.1 – Quarterly Water Six Monthly Monitoring	Date(s) of non-compliance:	6 June 2018
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Details of non-compliance:

Bore KCB53 reported a reading of 51.2mg/L over the DWER guideline limit of 50mg/L on 6 June 2018 during a six-monthly sampling event.

Nitrate	11SDMW08		GEWB0002		mg/L
	29-11-17	05-06-18	28-11-17	05-06-18	
	0.04	0.27	0.12	0.22	
	GEWB0004		GEWB0005		
	28-11-17	06-06-18	28-11-17	-	
	9.77	11.3	0.15		
	GEWB0016		KCB53		
	28-11-17	-	29-11-17	06-06-18	
	0.08		42.9	51.2	
	M06		M07		
	28-11-17	05-06-18	28-11-17	06-06-18	
	0.01	<0.01	0.12	0.13	

What was the actual (or suspected) environmental impact of the non-compliance?

NOTE – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.

There are no noted or visual effects on the surrounding environment from these elevated exceedances, further investigation will be made into determining if these are indeed elevated background results from the surrounding minerology as currently understood.

Cause (or suspected cause) of non-compliance:

Measurable levels of nitrate-nitrogen in these samples may also be indicators of explosive waste material within waste rock domains. Again, evaporative concentration near mining operations may be inferred here. All other bores have provided compliant readings on all other sampling events.

Section E – Details of Non-Compliance with Licence Condition

Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:

Ongoing monitoring to determine if concentrations are increasing, stabilizing or decreasing over time and if concentrations are influenced by rainfall events at these locations. If these results are reflected in certain topography, low points in catchments with surrounding minerology will also be investigated in the over the coming year and reported back to the department.

Was this non-compliance previously reported to DWER?

Yes, and No

Reported to DWER verbally

Date:


Reported to DWER in writing

Date:

Section F – Declaration

I declare that the information in this Annual Audit Compliance Report is true and correct and is not false or misleading in a material particular¹.

I consent to the Annual Audit Compliance Report being published on the Department of Water and Environmental Regulation's (DWER) website.

Signature ² :		Signature:	
Name: (printed)	Ian Gale	Name: (printed)	
Position:	Manager Environment and Heritage	Position:	
Date:	30/03/2019	Date:	
Seal (if signing under seal):			

¹ It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular.

² AACRs can only be signed by the licence holder or an authorised person with the legal authority to sign on behalf of the licence holder.